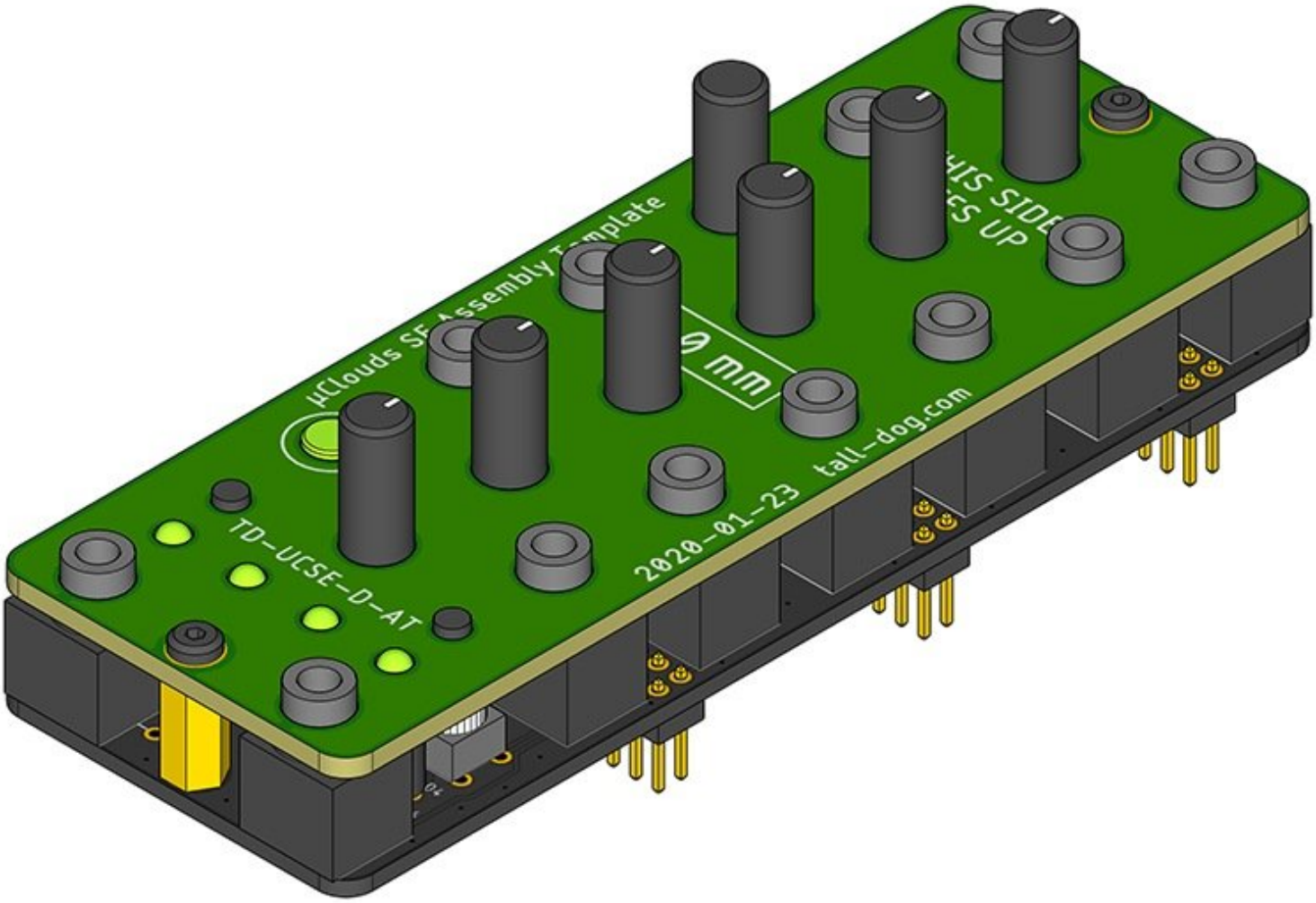
Tall Dog Electronics

µClouds SE Assembly Template Instructions

Written By: Daniel Gilbert



TOOLS:

- 1.5 mm hex driver (1)

PARTS:

- µClouds SE Control Board bare PCB (1)
- µClouds SE Assembly Template (1)
- µClouds SE Assembly Spacer (1)
- µClouds SE Assembly Cap (1)
- M2.5 × 10 mm female standoff (2)
- M2.5 × 6 mm pan head machine screw (4)

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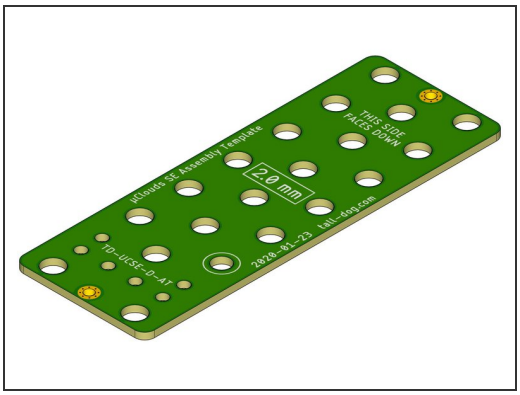
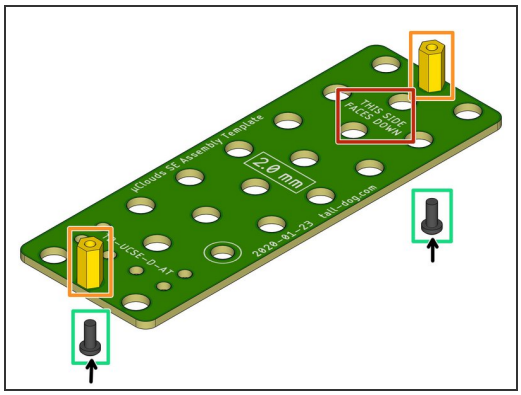
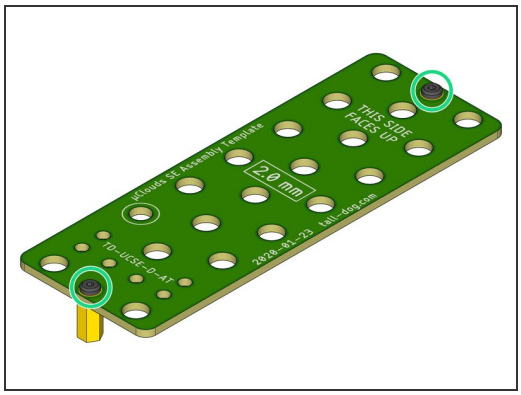
Step 1 — Prepare the Assembly Template



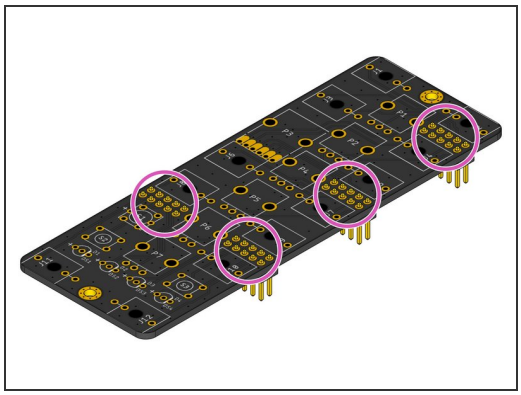


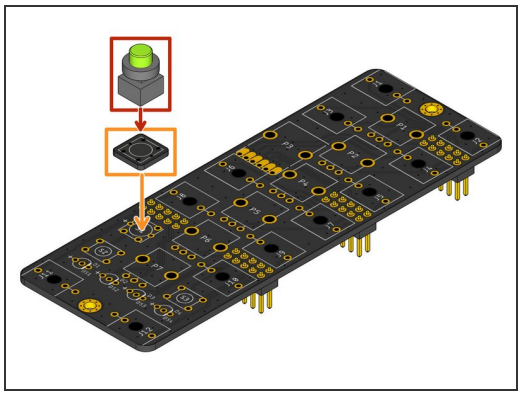


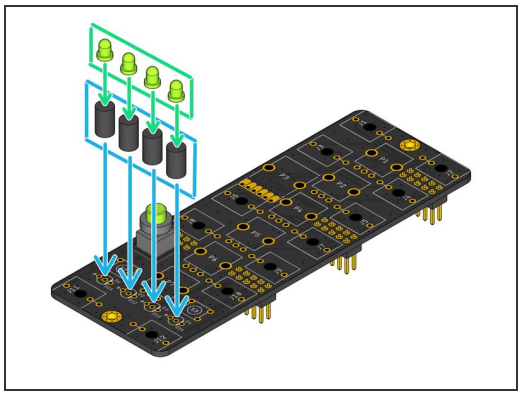
ⓘ **This step only needs to be done once.** The standoffs can remain attached to the template permanently for subsequent iterations.

- Identify the green Assembly Template. It has the part number **TD-UCSE-D-AT** printed on it.
- Note the orientation of the board. The standoffs will be installed on the side that has **THIS SIDE FACES DOWN** printed on it.
- Locate two **M2.5 × 10 mm female standoffs**.
- Secure each standoff using one **M2.5 × 6 mm pan head machine screw** in each of the two locations shown.
- Flip over the completed Assembly Template. It is now ready to be used.

Step 2 — Start placing Control Board components







- Identify the bare Control Board PCB. It has part number **TD-UCSE-D-CB** printed on its bottom side.
- For ease of access to the solder pads, **place and solder** the four through-hole components **H1-4** before continuing this process.

⚠ Do not solder any of the following components yet.

- Place the **spacer** onto switch component **S1**.
- Place the combined **spacer and switch** onto the Control Board.
- Place the four spacer components **DS1-4** onto LED components **D1-4**.
- Place the four combined **spacers and LEDs** onto the Control Board.

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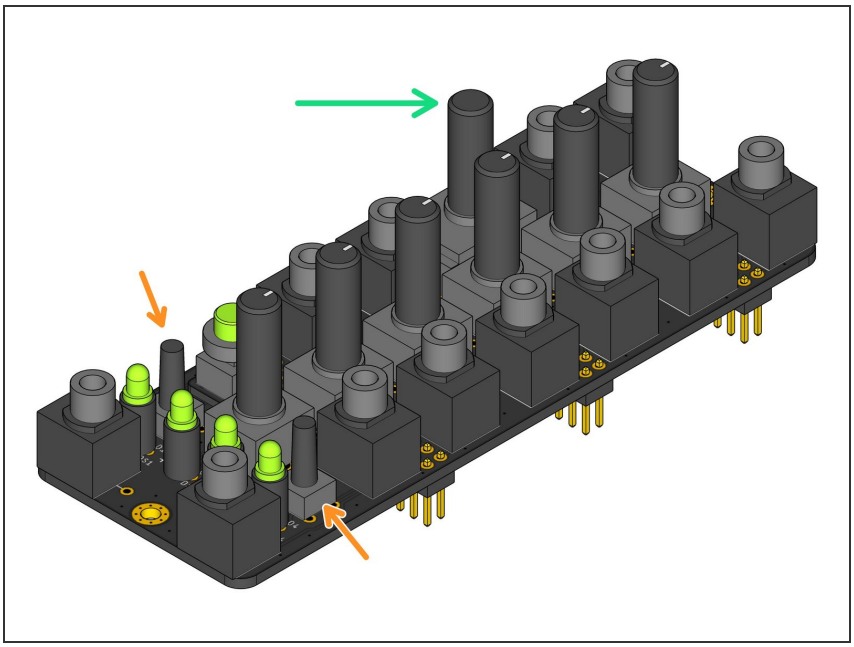
Step 3 — Finish placing Control Board components



- Place all of the remaining components onto the Control Board:
  - Place the twelve **jack** components **J1-12**.
  - Place the two **button** components **S2** and **S3**.
  - Place the six **potentiometer** components **P1-2** and **P4-7**.
  - Place the **dual-gang potentiometer** component **P3**.

    The leads on component **P3** must be bent in order for it to fit properly next to **J6**. Start by using pliers to **straighten** all of the leads, then **re-bend** all of the leads down as close to the body of the component as possible. Then place the component.

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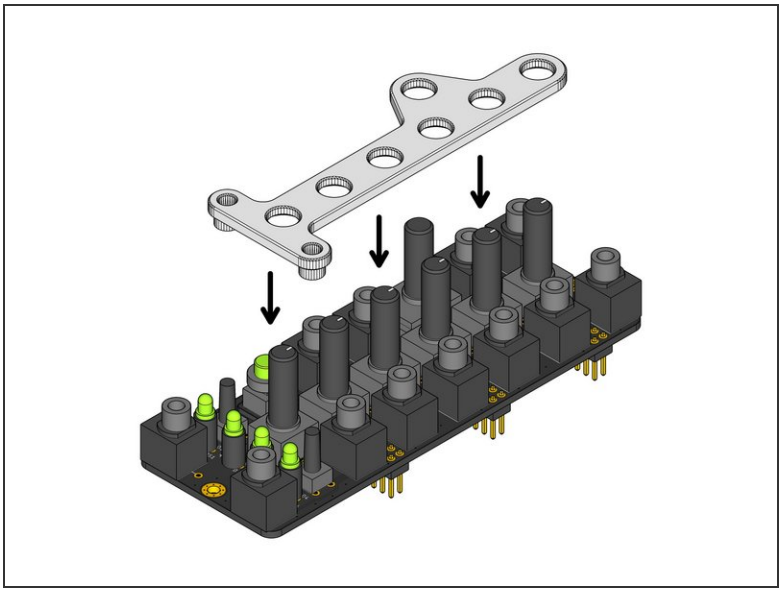
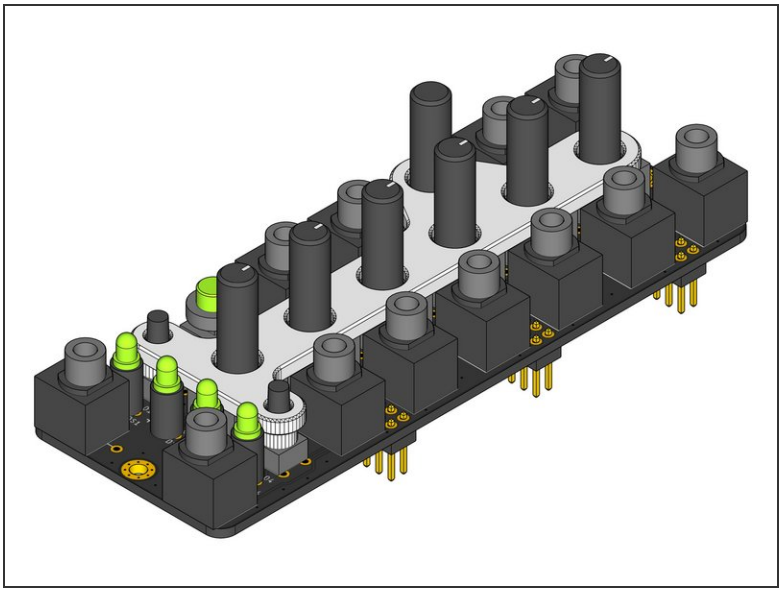
Step 4 — Place the Assembly Spacer





- Locate the white plastic Assembly Spacer part.

  ⓘ Make sure that the **flat side** of the Assembly Spacer is **facing up** when orienting it relative to the Control Board.

- Position the Assembly Spacer above the nine components **P1-7** and **S2-3** and slide it down onto them.

- The Assembly Spacer should rest on top of the nine components with **no gaps**. All nine component shafts should be extending upwards **through** the Assembly Spacer as shown.

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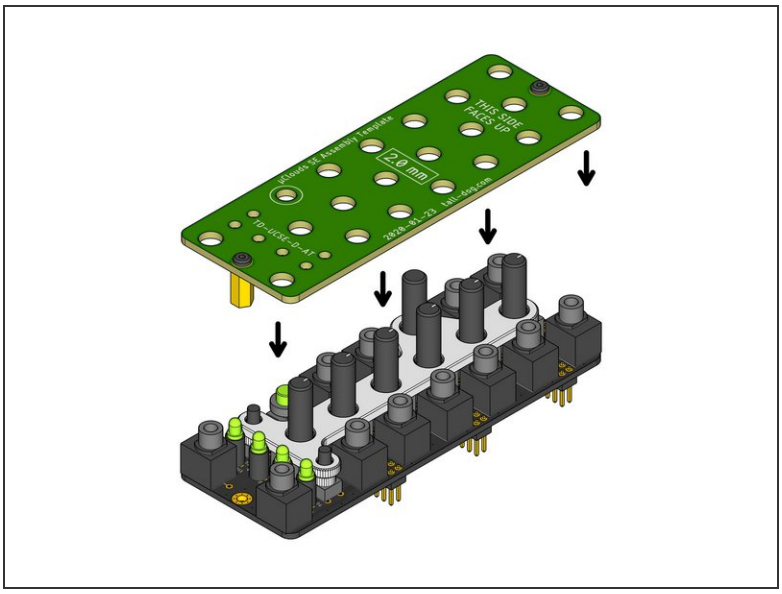
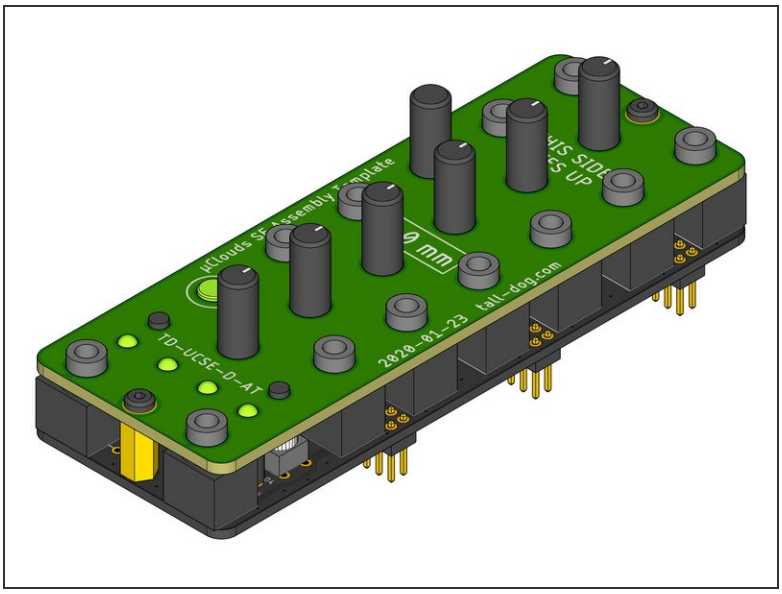
Step 5 — Place the Assembly Template

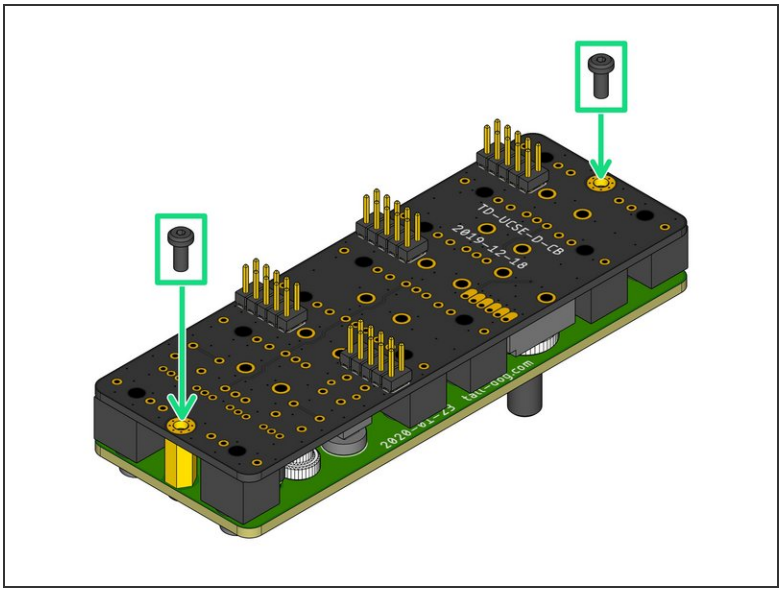


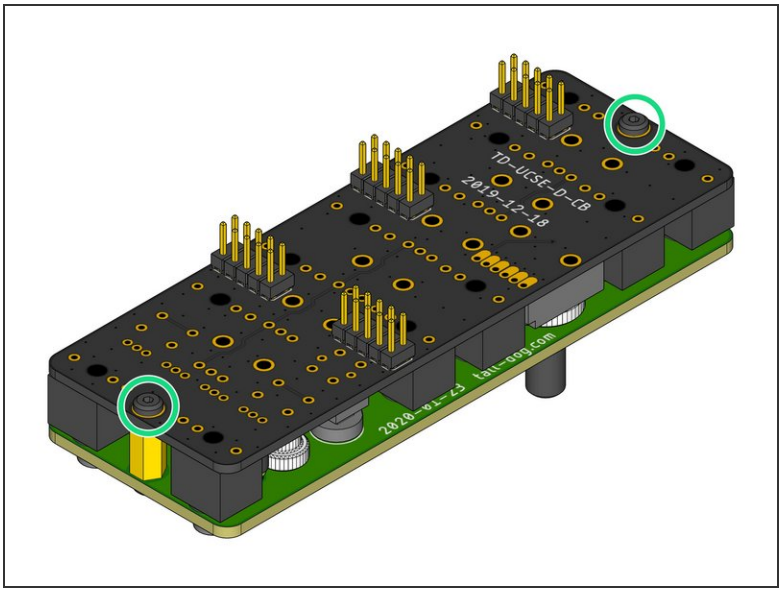


- Position the prepared Assembly Template above the Control Board as shown.
- Gently slide the Assembly Template down over all the loose components and the Assembly Spacer.

  ⓘ The Assembly Template may have to be gently wiggled in order to ensure that it is **fully seated** on all of the components underneath it. Both of the metal standoffs should sit **flush** against the top surface of the Control Board below.
- Verify that all components are **seated correctly** and are **sticking out** through the top surface of the Assembly Template as shown.

Step 6 — Secure the Assembly Template





- Grip the pair of boards and **flip them over** while applying slight pressure, holding them together so that none of the components become unseated.
- Locate and fasten two **M2.5 × 6 mm pan head machine screws** to secure the Assembly Template to the Control Board, sandwiching all of the loose components and the Assembly Spacer solidly in-between them.

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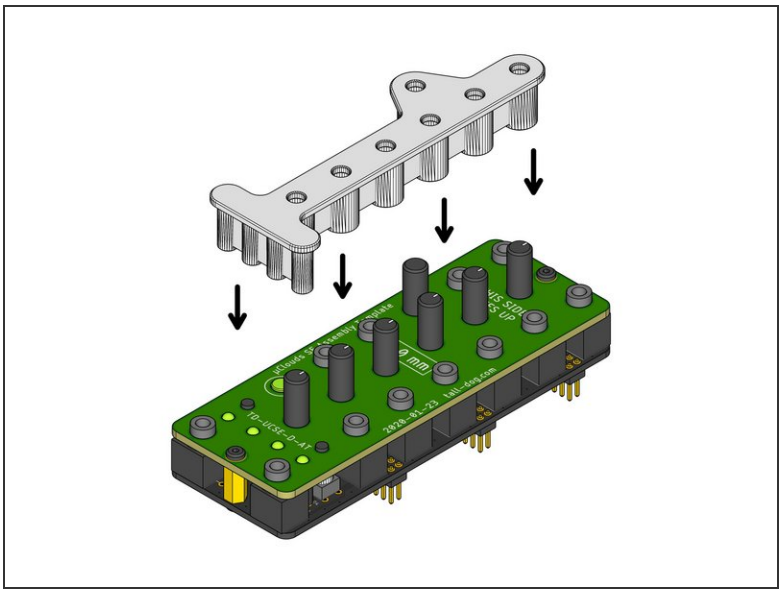
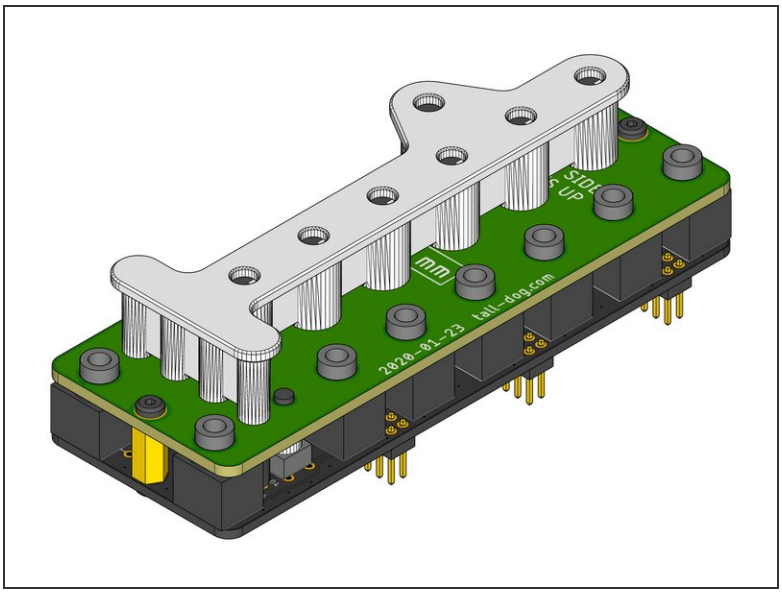
Step 7 — Place the Assembly Cap and solder





- Locate the white plastic Assembly Cap part.

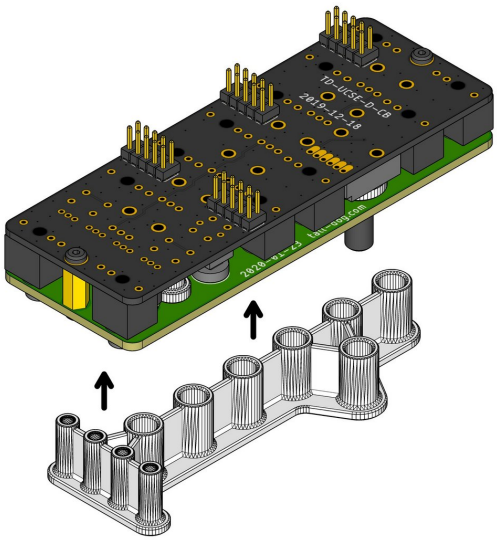
  Make sure that the **flat side** of the Assembly Cap is **facing up** when orienting it relative to the top surface of the Control Board as shown.

- Position the Assembly Cap above the eleven components **P1-7** and **D1-4** and slide it down onto them.

- The Assembly Cap should rest **flush** up against the Assembly Template with **no gaps** between them.

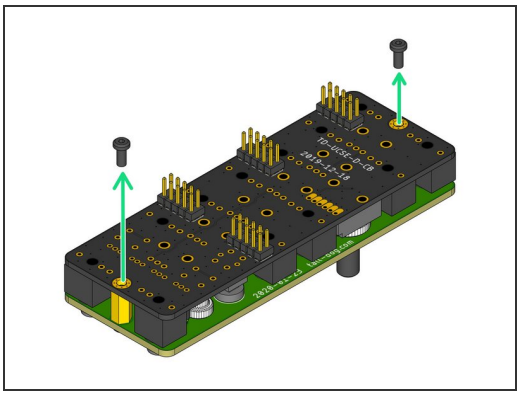
- Now **solder all of the loose through-hole components** in place. There are a total of 26 components with 92 solder joints.

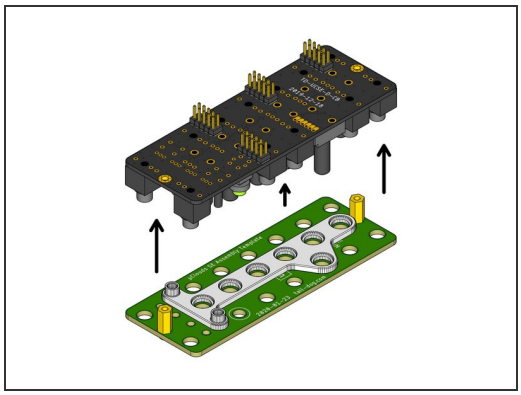
Step 8 — Remove the Assembly Cap

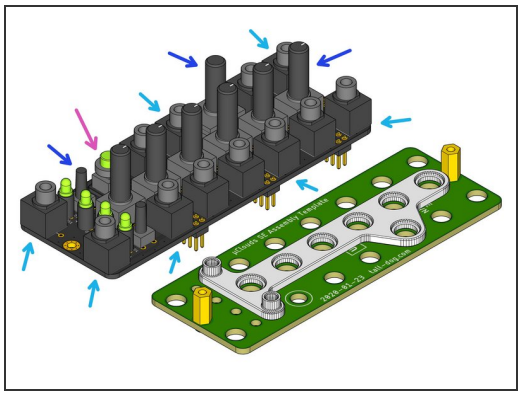


- Separate the Control Board from the Assembly Cap by applying **gentle** pressure.
- Put the Assembly Cap aside for use on the next iteration.

Step 9 — Remove the Assembly Template and Spacer







- Remove the two **M2.5 × 6 mm pan head machine screws** from the Control Board side of the assembly and put them aside for the next iteration.
- Gently lift the Control Board away from the Assembly Template and the Assembly Spacer. They should both slide off easily without applying much force.
- Inspect the Control Board assembly and verify that all of the following statements are **true**:
  - There are **no gaps** between the plastic bases of components **J1-12** and the top surface of the Control Board.
  - The shafts of components **P1-7** and **S2-3** rise **perpendicularly** (at a 90º angle) compared to the top surface of the Control Board.
  - The **spacer** beneath component **S1** is seated **flush** against the top surface of the Control Board.
- This completes the process.

ⓘ Leave the two standoffs attached to the Assembly Template and skip Step 1 on the next iteration of this process.